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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/686,370	10/12/2000	Masashi Saito	07553.0010	4800

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EXAMINER	
KACKAR, RAM N	
ART UNIT	PAPER NUMBER
1763	10

DATE MAILED: 10/16/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

ms 10

Office Action Summary	Application No.	Applicant(s)	
	09/686,370	SAITO ET AL.	
	Examiner	Art Unit	
	Ram N Kackar	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 September 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-6,8-11,14 and 15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-6,8-11,14 and 15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 1 recites the limitation "the entire surface" in the last line. There is insufficient antecedent basis for this limitation in the claim. From the applicants remarks "the entire surface" is assumed to be the surface where any of the primary or circulating supply holes exist.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 3-6 and 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurihara (JP 09251981 A) in view of Umotoy et al (US 6086677).

In regard to claim 1 Kurihara et al disclose independent gas flow systems comprising, primary gas flow (Fig 5, 111 or 112), circulating gas flow (107), both through plurality of holes (Fig 5 302) and a vacuum apparatus (303 and 106). Kurihara et al disclose hole density and hole radius for primary gas supply constant over the surface where holes exist (Fig 5-302). Kurihara et al however do not disclose radius and density of primary gas supply holes constant over entire surface where holes exist. Umotoy et al disclose a supply system for two independent gases (Fig 1-116,118) where gases enter the processing chamber through a showerhead so that the holes are

inter spread and both primary and secondary holes density and radius are constant over entire surface (Fig 1-148). Therefore it would have been obvious for one of ordinary skill in the art at the time invention was made to replace the shower head of Kurihara with the one of Umotoy et al so as to make both primary and ciculating gases flow evenly on the substrate.

Regarding claim 3 -5 Umotoy et al disclose radius, density and ratio of density of gas supply holes, constant over entire surface (Fig 1-148). As an example, the ratio of area over which primary and circulating holes exist is disclosed to be 1, which would be one of the valid ratios of target flow rates. In claims 3 and 4 setting of holes radius and density to ensure back – pressure below the rating of the vacuum pump would be an intended use.

Regarding claim 6 Kurihara discloses means of controlling conductance and in turn flow (Fig 5 112 and 108). Adjustment of these controls in addition to hole radius and hole density to make the conductance of circulating system higher than that of primary gas supply in order to achieve target flow without increasing back-pressure would be obvious to one of ordinary skill in the art at the time invention was made.

Regarding claim 8 both Kurihara et al (Fig 5 302) and Umotoy et al (Fig 1-144 and 136) disclose buffer space above primary and circulating holes.

Regarding claim 9 Kurihara et al disclose means for filtering circulating gas (Fig 1- 113).

Claims 10 and 11 are directed to an intended use and do not structurally define any thing over Kurihara.

4 Claims 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurihara et al (JP409251981A).

As stated above in paragraph 3, Kurihara et al disclose all the limitations of the claim 14 and 15 except that, the number of circulating gas supply holes is not disclosed higher than the number of primary gas supply holes and the supply quantity of the circulating gas is not disclosed higher than the supply quantity of the primary gas.

Regarding claim 14, it would be obvious for one of ordinary skill to have larger number of circulating holes so as not to make the circulating system conductance limited so as to enable a required flow of circulating gas without increasing the back flow. In case of smaller flow requirement, flow adjustment (108) could be used.

Regarding claim 15 the actual quantity is an intended use and does not define structurally over Kurihara et al.

Response to Amendment

Applicants arguments filed on 8/28/2002 and the claim amendments are considered in this office action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ram N Kackar whose telephone number is 703 305 3996. The examiner can normally be reached on M-F 8:00 A.M to 5:P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on 703 308 1633. The fax phone numbers for the organization where this application or proceeding is assigned are 703 872 9310 for regular communications and 703 872 9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0661.

RK
October 8, 2002

GREGORY MILLS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700